

DOCUMENT RESUME

ED 214 472

HE 014 940

AUTHOR Estabrook, Marina
TITLE Faculty and Student Evaluations of College Classrooms.
PUB DATE Sep 81
NOTE 18p.; Paper presented at the Joint Meeting of Evaluation Network and Evaluation Research Society (Austin, TX, September 1981).
EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Classroom Design; *Classroom Environment; Classroom Furniture; College Buildings; Higher Education; Institutional Research; *Interior Space; *Student Attitudes; *Teacher Attitudes; Temperature; Ventilation
IDENTIFIERS Noise (Sound)

ABSTRACT

All 100 general assignment classrooms at a major university were evaluated by faculty and students, using faculty and student questionnaires. Respondents rated the classrooms they were currently occupying on a number of specific features and indicated what they liked the most and the least about the classroom. Thirty percent of the faculty found the classrooms in which they taught to be poorly or very poorly suited to their teaching purposes. Poor ventilation and poor temperature conditions were prevalent problems. Forty-four percent rated the aesthetics of classrooms as poor or very poor. The noise level, either inside or outside the classroom was considered distracting by approximately one-third of the instructors. The arrangement of student seating was unsatisfactory to about one-fourth of the teachers, and audiovisual facilities were judged inadequate by about one-fifth. The overall ratings of classrooms by students were higher than by faculty. Only 15 percent of the students rated the classrooms as poorly or very poorly suited to their learning purposes as opposed to 30 percent of the faculty rating the classrooms as poorly or very poorly suited to their teaching purposes. However, 33 percent of the students reported that classrooms were poorly suited for test-taking purposes. The storage areas for personal belongings and ventilation was rated as inadequate by about one-half of the students. Space between seats, aesthetics, and writing surface areas, and temperature were rated as inadequate by 28 to 43 percent of the students. The factors most important to overall classroom suitability were also analyzed. (SW)

* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *

ED214472

TITLE: Faculty and Student Evaluations of College Classrooms

AUTHOR: MARINA ESTABROOK*

ADDRESS: The Teaching Resources Center
University of California, Davis
Davis, CA 95616

Paper presented at The 1981 Joint Meeting of Evaluation Network and Evaluation Research Society, September, 1981, Austin, Texas.

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)

☒ This document has been reproduced as
received from the person or organization
originating it.
☐ Minor changes have been made to improve
reproduction quality.

* Points of view or opinions stated in this docu-
ment do not necessarily represent official NIE
position or policy.

"PERMISSION TO REPRODUCE THIS
MATERIAL HAS BEEN GRANTED BY

Marina
Estabrook

TO THE EDUCATIONAL RESOURCES
INFORMATION CENTER (ERIC)."

*The author thanks Professor Robert Sommer and Dr. Daniel L. Wick
for their invaluable assistance.

HE 014940

ABSTRACT

General assignment classrooms at a major university were evaluated by faculty and students. The results show that 30% of the faculty find the classrooms ill-suited for their teaching purposes. More students are dissatisfied with classrooms as a test-taking environment (33%) than as a learning environment (15%). The study identified major problems associated with college classrooms and assesses the relationship between classroom characteristics and overall classroom suitability for teaching and learning.

FACULTY AND STUDENT EVALUATIONS OF COLLEGE CLASSROOMS

INTRODUCTION

Although college classrooms falling under the category of general assignment classrooms (as opposed to labs) are designed to accommodate virtually all academic disciplines, and all teaching and learning styles, it is questionable how well they actually serve the educational needs of faculty and students.

Previous studies have shown user dissatisfaction with classrooms. Farrenkopf (1979) found that students were most dissatisfied with the aesthetics, spatial arrangement, heating/ventilation/air-conditioning, furniture, and presence or absence of windows. One condition that apparently contributes to user dissatisfaction is room density. As class size increases the number of complaints by students increases about ventilation, room size, and the classroom in general (Sommer and Becker, 1971). Sommer and Olsen (1980) demonstrated the importance of aesthetics and classroom design not only with respect to student satisfaction but also with respect to student behavior in the classroom. Following the remodeling of a small general assignment classroom by altering the decor, type of furniture and its arrangement, student participation increased significantly, as did student ratings of the classroom.

Most studies evaluating user satisfaction with classrooms focus on the student. Aside from anecdotal evidence virtually no information exists about faculty assessment of classrooms. Consequently less is known about the adequacy of college classrooms as teaching environments than as learning environments.

The purpose of this study was to learn from students and faculty what problems, if any, are associated with general assignment classrooms. Furthermore, we wished to determine how classroom characteristics are related to classroom suitability for teaching and learning purposes.

Because we were interested in obtaining special information about each classroom, as well as an overview of the classrooms on our campus, we set out to evaluate all our general assignment classrooms. Past research, on the other hand, has focused on one or a small sample of the classroom pool.

PROCEDURE

Two brief questionnaires were designed to evaluate general assignment classrooms: one each for faculty and students. The questionnaires asked the respondents to rate the classrooms they were currently occupying on a number of specific features as well as supply an overall rating of the classrooms. The faculty questionnaire contained 11 rating items (see Table 1) and the student questionnaire 18 items (see Table 2). Ratings were done on a five-point scale (excellent, good, OK, poor and very poor) but for analysis excellent and good were combined as were poor and very poor. Respondents were asked to circle "N" if the item evoked no opinion or was not applicable. In addition to the rating items the questionnaires contained two open-ended questions. The respondents were asked what they liked the most and the least about the classroom.

Faculty evaluations were conducted late in the Spring quarter and the student evaluations late in the Winter quarter. The method for conducting the faculty survey differed from the student survey. Faculty received the questionnaire by mail while students were surveyed in the classroom.

RESULTS

All 110 general assignment classrooms were evaluated by instructors and students. On the average each classroom was evaluated by 4.6 instructors and by 2 separate classes of students.

Major Problems Associated with Classrooms

Faculty evaluations: Thirty percent of the faculty found the classrooms in which they taught to be poorly or very poorly suited to their teaching purposes. The results (Table 1) indicate that poor ventilation and poor temperature conditions are prevalent problems in classrooms. Forty-seven percent of the respondents noted ventilation and 42% temperature in the classroom as poor or very poor. The comments of the faculty reflect their frustration with the heating/ventilation/air conditioning system: "The room is so hot and stuffy that it just knocks the students out." "If you keep the door shut, (the room) becomes unbearably hot and stuffy, if you open the door, noise from the hall makes teaching impossible."

TABLE 1

Faculty Ratings of 110 General Assignment Classrooms
(511 respondents)

<u>Classroom features</u>	<u>Percentage of faculty rating room:</u>		
	<u>Ex/good</u>	<u>OK</u>	<u>Poor/very poor</u>
1) A/V suitability	54%	25%	21%
2) Ventilation	28%	25%	47%
3) Acoustics	54%	32%	14%
4) Freedom from noise	43%	27%	30%
5) Blackboard space	71%	19%	10%
6) Instructor's area	57%	30%	13%
7) Temperature	31%	27%	42%
8) Aesthetics	25%	31%	44%
9) Student seating	44%	31%	24%
10) General condition of room	46%	39%	15%
11) Overall suitability of classroom for instructor's teaching pur- poses	38%	32%	30%

Next to ventilation aesthetics received the lowest rating. Forty-four percent rated the aesthetics of classrooms as poor or very poor. The words most commonly used to describe the appearance of the rooms were: cold, drab, ugly, sterile, stark, grim and plastic.

The noise level, either inside or outside the classroom, was considered distracting by approximately 1/3 of the instructors. Among the sources of the noise cited by the faculty were: noisy ventilation/ air-conditioning/heating system, voices from the hallways, sound tracks of movies shown in adjacent classrooms, lawn mowing and construction.

The arrangement of student seating was unsatisfactory to approximately 1/4 of the respondents. Most comments about the seating arrangement referred to the large number of chairs or students in the classroom, the shape of the classroom (shallow and wide versus long and narrow) and the type of student seating (fixed versus movable furniture).

The audio-visual facilities were judged inadequate by approximately 1/5 of the respondents. Among the reasons for assigning a low rating to this item were: inability to darken the room sufficiently for showing slides and films, missing projector stands, poor placement of electric outlets, inability to control projector or lighting from the front of the classroom, and inappropriate distance between projector stand and screen.

Although a substantial portion of faculty members showed dissatisfaction with the above classroom features, there was relatively little (<20%) dissatisfaction with the remaining classroom features: blackboard space, the instructor's area, acoustics and the general condition of the classroom. One may assume, then, that overall no major problems are associated with these features.

Student evaluations: The overall ratings of classrooms by students were higher than by faculty. Only 15% of the students rated the classrooms as poorly or very poorly suited to their learning purposes as opposed to 30% of the faculty rating the classrooms as poorly or very poorly suited to their teaching purposes. However, 33% of the students reported that classrooms are poorly or very poorly suited for test-taking purposes.

The student survey identifies a number of problem areas (Table 2). The storage area for personal belongings was considered inadequate by approximately 1/2 the students. Our students may have been particularly sensitive to this item because the survey was conducted during the rainy season when students bring into the classroom not only their books and supplies but rain gear as well.

Ventilation was also rated low by approximately 1/2 the student population. This item was rated similarly by faculty and students.

TABLE 2

Student Ratings of 110 General Assignment Classrooms
(4096 respondents)

<u>Classroom features</u>	<u>Percentage of students rating room:</u>		
	<u>Excellent/good</u>	<u>OK</u>	<u>Poor/very poor</u>
1) Acoustics	61.6%	30.5%	7.8%
2) Visibility of blackboard	68.1%	21.5%	10.4%
3) Comfort of chairs	44.0%	37.8%	18.2%
4) Size of room for your class	57.7%	25.5%	16.7%
5) Ventilation	29.9%	34.0%	46.1%
6) Adequacy of writing surface on student desk	32.0%	37.6%	30.2%
7) Lighting	63.3%	29.0%	7.6%
8) Arrangement of student seating	40.5%	40.7%	18.8%
9) Visibility of slide, film or overhead projection on screen	59.0%	32.1%	9.0%
10) Room temperature	33.6%	38.0%	28.4%
11) Freedom from distracting outside noises	51.9%	31.7%	15.4%
12) Visibility of TV monitors	---	---	---
13) Amount of space between seats	21.5%	35.7%	42.6%
14) Storage area for personal belongings	15.1%	39.3%	47.6%
15) View of instructor	62.1%	30.3%	7.6%
16) Aesthetics	24.2%	40.2%	33.6%
17) Suitability of room for test-taking	24.4%	42.3%	33.2%
18) Overall evaluation of this classroom as a suitable learning environment	41.5%	43.3%	15.3%

Space between seats was considered inadequate by 43% of the respondents. Comments by students clearly reflect that crowding is a major problem. They report that there are too many chairs, students, or both, in the classroom. Not only do students believe that the distance between chairs is insufficient but also between rows of chairs as well.

Aesthetics received low ratings by approximately 1/3 of the students. The adjectives used by students to describe the classrooms were virtually identical to those used by the faculty (dull, grim, ugly, etc.).

The writing surface area on student chairs was considered inadequate by 30% of the respondents. Students were particularly bothered when taking exams by the small writing arm on chairs in most lecture halls. One student wrote: "We have open-book exams, a test booklet and an answer sheet... Where are we supposed to put all this?" Furthermore, because student chairs are designed for right-handed students the writing surface is especially inadequate for left-handed students.

Temperature conditions were considered poor or very poor by 28% of the students. Rooms were considered too hot despite the fact that the survey was conducted during the coolest time of the year.

The above six features were rated low by more than 1/4 of the students and can therefore be considered as major problem areas. The remaining items on the questionnaire received considerably higher ratings and thus, on the whole, do not constitute major problem areas. The remaining items are: view of the instructor, lighting, acoustics, visibility of projections on the screen, visibility of blackboard, noise, size of room for class, comfort of chairs, and the seating arrangement.

One item on the questionnaire that does not appear on Table 2 is visibility of TV monitors. The rating on this item was excluded because in the rooms containing TV monitors only a small proportion of the classes surveyed actually used the monitors.

Relationship Between Classroom Suitability and Classroom Features

A second step in our evaluation of classrooms was to determine how classroom suitability is affected by specific classroom features. It is not inconceivable that some features, though rated low by faculty or students, are insignificantly related to the respondents' overall satisfaction with the classroom.

With respect to the faculty survey, the results (Table 3) indicate that all the items on the questionnaire are positively and significantly correlated with classroom suitability for teaching purposes. However, the most salient features are aesthetics ($r=.63$), student seating arrangement ($r=.60$) and ventilation ($r=.59$).

TABLE 3

Pearson Correlation Between Faculty Ratings of Classroom Features and Rating of Overall Classroom Suitability

<u>Item</u>	<u>Coefficient (r)</u>	<u>Significance</u>
Aesthetics	.63	p <.001
Student seating arrangement	.60	p <.001
Ventilation	.59	p <.001
General condition	.53	p <.001
Acoustics	.51	p <.001
Temperature	.49	p <.001
Noise	.47	p <.001
Instructor's area	.46	p <.001
Blackboard space	.44	p <.001
A/V suitability	.43	p <.001

With respect to the student survey, all the itemized classroom features are likewise positively and significantly correlated with classroom suitability for learning purposes (Table 4). But aesthetics, the suitability of room for test-taking purposes, and items related to spatial aspects of the room (student seating arrangement, amount of space between seats, size of room for class, storage area for personal belongings) correlate the highest with overall suitability.

TABLE 4

Pearson Correlation Between Student Ratings of Classroom Features and Rating of Overall Classroom Suitability

<u>Item</u>	<u>Coefficient (r)</u>	<u>Significance</u>
Aesthetics	.43	p <.001
Student seating arrangement	.41	p <.001
Suitability of room for test-taking	.40	p <.001
Amount of space between seats	.40	p <.001
Size of room for class	.39	p <.001
Storage area for personal belongings	.38	p <.001
Ventilation	.37	p <.001
Comfort of chairs	.37	p <.001
Temperature	.37	p <.001
View of instructor	.36	p <.001
Visibility of blackboard	.33	p <.001
Acoustics	.32	p <.001
Writing surface area	.30	p <.001
Lighting	.29	p <.001
Freedom from noise	.29	p <.001
Visibility of projection on screen	.27	p <.001

An analysis of the relationship between classroom suitability for test-taking purposes and classroom features reveals that spatial factors take priority in importance over other features, including aesthetics (Table 5). The item that correlated the highest with classroom suitability for test taking-purposes was space between seats ($r = .5$). It must be remembered that class attendance at exam time tends to be higher than at other times and the resultant room density reduces the space between students.

TABLE 5

Pearson Correlation Between Student Ratings of Classroom Features and Rating of Classroom Suitability for Test-taking

<u>Item</u>	<u>Coefficient (r)</u>	<u>Significance</u>
Space between seats	.50	p <.001
Space for personal belongings	.41	p <.001
Size of room for class	.38	p <.001
Student seating arrangement	.36	p <.001
Writing surface area	.35	p <.001
View of instructor	.34	p <.001
Aesthetics	.28	p <.001
Ventilation	.28	p <.001
Room Temperature	.26	p <.001
Visibility of projection on screen	.25	p <.001
Lighting	.24	p <.001
Noise	.23	p <.001
Comfort of chairs	.23	p <.001
Visibility of blackboard	.23	p <.001
Acoustics	.18	p <.001

DISCUSSION

On college campuses there has traditionally been a sharp division between the managers and the users of classrooms. Campus administrative units design, assign, modify, and maintain classrooms. Seldom are faculty and students consulted or asked to participate in decisions about classrooms. This despite the fact that they are the ones most affected by the decisions. The adverse effect of such lack of communication is that bureaucratic concerns take priority over academic ones.

Our study indicates that, from an academic perspective, classrooms need to be improved. Although we collected information for our campus on each general assignment classroom the overall assessment presented in this paper identifies general problems associated with classrooms.

The study raises many issues, but three merit special attention: (1) aesthetics, (2) student seating, and (3) ventilation and temperature.

The fact that, of all the classroom features listed on the questionnaires, aesthetics correlated the highest with classroom suitability for teaching and learning was surprising. However, the finding indicates that a humanized environment is important to those that occupy classrooms.

Among the arguments frequently made against adding color and decorations to classrooms are: (1) that consensus on aesthetics is unattainable and therefore a "neutral" environment is the safest or (2) that a stimulating environment distracts the learner. However as Sommer (1974) points out, "A vote against pictures and murals and amenities is at the same time a vote for drabness and sterility... The administrator who believes that someone might complain about a given picture or mural seemingly pays no heed to protest against drab walls and furnishings."

In response to the second argument, there simply is no evidence that the learner's (or teacher's) classroom performance would suffer if color and decorations were added. The evidence, in fact, points to the opposite. "Ugly" environments are associated with behaviors incongruent with the educational enterprise: feelings of discontent, the desire to escape, and fatigue (Maslow and Mintz, 1956; Mintz, 1956). One can only conclude that the perpetuation of drabness and sterility in college classrooms is supported more by habit than by empirical evidence.

With respect to student seating, our study raises an important issue: What is the optimal room density per classroom?

Criteria currently used to determine seating capacity on our campus are California State standards for number of students per square foot of floor space and standards based on Fire Code regulations. These standards were established without regard to any considerations of human comfort or differences in spatial needs among academic disciplines or instructional styles.

Our results, however, indicate that these current standards are unsatisfactory. A high proportion of students and some faculty find the classrooms too crowded with chairs and students (reflected by ratings of space between seats, size of room for class, as well as by student and faculty comments). Similar results were obtained by Sommer and Becker (1971). Furthermore, items related to spatial aspects correlate highly with overall room suitability.

It is unlikely, though, that a satisfactory formula for determining optimal room density based on user criteria can be developed without further research into crowding. A preliminary analysis of individual differences among classrooms shows that a sense of crowdedness in the classroom is not merely a function of number of students per square foot

but also of such factors as size and shape of room, presence or absence of windows, the arrangement of furniture, and visibility of instructor to students and vice versa.

Other aspects of the classroom environment that warrant special consideration are ventilation and temperature. Both faculty and students complain extensively and vigorously about stuffiness and heat in the classrooms. Although solutions to these problems rest mainly with campus engineers and designers, previous research suggests that part of the solution may be a reduction in class size (Sommer and Becker, 1971).

References

- FARRENKOPF, T. Physical Dimensions of College Classroom Environments, Resources in Education, ERIC, October 1979.
- MASLOW, A. M. and MINTZ, N. L. The effects of esthetic surroundings: I. Journal of Psychology, 1956, 41, 247-254.
- MINTZ, N. L. Effects of esthetic surroundings: II. Prolonged and repeated experience in a "beautiful" and "ugly" room. Journal of Psychology, 1956, 41, 459-466.
- SOMMER, R. and BECKER, F. Room density and user satisfaction. Environment and Behavior, December 1971, 412-417.
- SOMMER, R. Tight Spaces: Hard Architecture and How to Humanize it. Englewood Cliffs, N.J.: Prentice Hall, 1974, p. 96.
- SOMMER, R. and OLSEN, H. The Soft Classroom. Environment and Behavior, March 1980, 3-16.